STUDENT'S INTENTION TO USE WIKIS FOR ONLINE COLLABORATIVE LEARNING (OCL)

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This dissertation is dedicated to my husband and my family for their endless support and encouragement throughout my studies. Thank you so much to my lovely husband, Syed Nuruddin Bin Syed Muhamad, also to my children Syed Ahmad Yasin, Sharifah Aminah Aljufri and Syed Ibrahim Aljufri always gives support to me. Thanks a lot to my lovely dad Tn Haji Syed Salim and family for always being there for me through my good time and bad.

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ABSTRACT

Online Collaborative Learning (OCL) is very prominent nowadays. Even though OCL is utilized all over the globe, there are still limitations in evaluating the factors influencing intention to use tools and technologies of online collaborative learning, especially in Malaysia. This study aimed to investigate factors affecting the intention to use Wikis for OCL through the Unified Theory of Acceptance and Use of Technology (UTAUT) has been adopted in designing the theoretical framework for the study. This framework is applied to examine the significant differences between level of study related to factors affecting the intention to use Wikis namely the performance expectancy, effort expectancy, social influence, the features of OCL and intention to use. A survey was used to collect usable data from 233 undergraduate students in a Universiti Teknologi Malaysia. Structural Equation Modeling (SEM) was used as the technique for data analysis. The results show that all construct was significant predictors of intention to use Wikis. Overall, the proposed model achieves an acceptable fit and explains its variance for 66% of sample. The implications of the study's findings for practice and research are discussed, and avenues for future research outlined.

ABSTRAK

Pembelajaran Kolaborasi Dalam Talian (OCL) sangat menonjol pada masa kini. Walaupun OCL digunakan di seluruh dunia, masih ada batasan dalam menilai faktor-faktor yang mempengaruhi niat menggunakan alat dan teknologi pembelajaran kolaboratif dalam talian, terutama di Malaysia. Kajian ini bertujuan untuk menyiasat faktor-faktor yang mempengaruhi maksud menggunakan Wikis untuk OCL menerusi *Unified Theory of Acceptance and Use of Technology* (UTAUT) telah digunakan dalam merangka rangka kerja teoritis untuk kajian ini. Rangka kerja ini digunakan untuk meneliti perbezaan yang signifikan antara tahap kajian yang berkaitan dengan faktor yang mempengaruhi niat untuk menggunakan Wikis iaitu jangkaan prestasi, harapan usaha, pengaruh sosial, ciri-ciri OCL dan niat untuk digunakan. Satu tinjauan digunakan untuk mengumpul data yang boleh digunakan daripada 233 pelajar siswazah di Universiti Teknologi Malaysia. Pemodelan persamaan struktur (SEM) digunakan sebagai teknik untuk analisis data. Keputusan menunjukkan bahawa semua membina adalah peramal penting untuk menggunakan Wikis. Secara keseluruhannya, model yang dicadangkan mencapai kesesuaian dan menjelaskan variansnya untuk 66% sampel. Implikasi dari hasil kajian untuk amalan dan penyelidikan dibincangkan, dan jalan untuk penyelidikan masa depan yang digariskan.

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CHAPTER 1

INTRODUCTION

1.1 Overview

Technology is changing so fast nowadays. It is transforming the way people communicate and collaborate, as well as consume information and participate in the World Wide Web. One need to be holistic when he/she thinks about the future of learning in a knowledge-based as learning will become a lifelong activity that cuts across different learning generations and life spheres such as private and public. The focus should therefore be not only on traditional formal learning institutions such as schools and universities but it should also involve other forms of online collaborative adult learning and many forms of informal learning. Learners need to be prepared not only to operate the technology but also for higher order skills such as knowing and understanding what it means to live in a digitalized and networked society and what it means to work in online collaborative learning teams where information is shared and knowledge is constructed collaboratively.

Online collaborative learning is where students learn together actively and interact with instructors and other participants via social interaction using computers or online surroundings (Altowairiki, 2013; Barra et al., 2014). Online collaborative learning activities can be performed via applications such as Blogs (Mora et al., 2015), Wikis (Lawrie et al., 2016; Miyazoe & Anderson, 2010; Sutton & Hazeri, 2012), EBook (Ahmad & Brogan, 2016; Gao & Deng, 2012), Blackboard (Bettayeb

& Shaalan, 2014) and Google Docs (Agcaoili, 2012). Among the key success factors for this method include positive interdependence among group members, instructor assistants and participation, input, feedback, corrections and sample materials, collective responsibility, confidence in completing the tasks, nature of the task and distribution of control amongst students (Soediono, 2015; Stoszkowski et al., 2017; Tarhini, 2017). It is found that online collaborative learning approaches present positive effects on learning (Kanaganayagam & Fernando, 2013a) because these approaches are more effective compared to their traditional counterparts especially in encouraging student learning and academic achievement (Dela Pena-Bandalaria, 2013).

Wikis are one of the most promising technologies that allow people to implement a collaborative technique on a work group in virtual environments (Amaral, 2014; DeWitt et al., 2014; Gielen & Wever, 2015; Fidalgo et al., 2015). Wikis provide a way for students to convey their views. They help students to pick up skills like reading, writing, being reflective and other online collaborative learning skills. Via this tool, students will be provided with a positive psychological online collaborative learning consequence and will be able to keep up with technological innovations (Israel et al., 2016). The effectiveness of Wikis has been studied in many levels such as schools, colleges and universities (Monika & Hvoreck, 2017). Wikis can be easily used by all walks of life and it is easy to import images, create hyperlinks, make discussions, post assignments, and perform collaborative projects via these platforms.

In the past two decades, many researchers have attempted to provide theoretical models to explain and predict users' intention to use online collaborative learning of information technology and information system (Venkatesh & Davis 2000). Among these models, the Unified Theory of Acceptance and Use of Technology (UTAUT) is believed to be one of the most well-researched, robust and parsimonious model in predicting users' collaborative learning of technology online (Cornell et al., 2011; Venkatesh & Davis, 2000). This model aims to forecast user intention of using an information system and his/her subsequent intentions

(Pardamean & Susanto, 2015). UTAUT have four basic constructs namely performance expectancy, effort expectancy, social influence and facilitating conditions, as well as four moderating variables which are age, gender, experience and voluntariness of use (Toh, 2013).

In an effort to understand Wikis as a tool in online collaborative learning, researchers have studied the factors that influence intentions to use Wikis. Intention describes one's subjective probability that he/she will perform something intentionally. The main dependent variable identified in the studies conducted based on the UTAUT model is the likelihood that an individual will use an information system. Intention plays a critical role in the actual use of a new technology (Davis, 1989). Intention to use can also be considered as an attitude (Mohammadi, 2015a). The intention to use a technology can be determined by measuring three metrics, namely computer anxiety, self-efficacy and enjoyment (Esterhuyse & Scholtz, 2016). Computer anxiety describes the obstruction on one's intention to use a system due to anxiety stemming from the use of a computer, which in turn hinders one from being able to complete tasks using a computer. When users have computer anxiety, they may experience feelings of uneasiness, apprehensiveness or fear when thinking about current or future use of computers. Self-efficacy relates to the belief in one's capabilities to initiate one's motivation, cognitive resource and courses of action required to meet the demands of a given situation. In the field of information system, enjoyment can be defined as the extent to which the task of using a technology or system is perceived to be pleasing, regardless of any performance consequence that may be anticipated. Higher enjoyment of using a system positively influences the intention to use a system. Intention to use technology is used as the outcome variable in this study.

1.2 Background of the Problem

Nowadays, many universities offer collaborative learning via virtual space. Knowledge transfer processes that are based in leveraging knowledge are held in different parts of the organization or university. Online collaborative learning is very flexible, and it urges students and instructors to interact, think differently, and be creative in their decision making process. In this way, students will be able to integrate and assess all kinds of information that they have and comprehend on the impacts of that information on their learning process. Generally, the factors behind the utilization of different forms of technology may be different (Toh, 2013). Thus, factors that influenced the intention to use online collaborative learning in different contexts need to be reviewed in order to comprehend students' intention towards using this technology.

Currently, there are various methods used to investigate students' intention to use online collaborative learning (Du et al., 2016; Shorfuzzaman et al., 2015; Eck et al., 2016). Some of the approaches are mainly applied in higher education settings such as learning styles and students intention to support online collaborative learning strategy using Wikis (K. M. Li, 2015), co-constructing knowledge for MediaWikis and Google Docs (Samuel& Kennedy, 2011), examining the influence of students' learning styles on the intention of open learner models for information sharing (Sek et al., 2015), comparing learners' interactions using Wikis (Ioannou et al., 2015), analysing students' participation patterns and learning intention in virtual environment (Schuster et al., 2015), determining factors that influence the effectiveness of technology integration on instructors and students from the tertiary education sector in the age of Web 2.0 and Google tools (Varela & Alexander, 2016) and patterns of students' intention in synthetic social networks (Narkwilai et al., 2015).

There are many benefits of using online collaborative learning methods. For example, according to a research (Gallagher et al., 2014), in the process of working together, students will be more active, develop higher level thinking, enhance self-management, and improve oral communication and also leadership skills. Students can also improve their sense of responsibility and self-esteem (Webb, 2016). Online

collaborative learning can develop and improve students' skills and knowledge, help them to perform group assignments and collaborate among them (Akar et al., 2004). This means that this style of learning is a good way to learn new things since it utilizes the concept of collaboration and can be done anywhere and at any time, provided there is a stable internet connection.

Currently, there are several on-going researches done in Universiti Teknologi Malaysia (UTM) for collaborative learning (W. M. Al-Rahmi et al., 2014). Previous studies done in this university are more focused on e-learning (Othman, 2013; Said et al., 2014) and no study has been done on Wikis (Zakaria et al., 2012; Al-Rahmi et al., 2015; Seyed Ali Hosseini, 2015). Previous researchers have studied different categories including theoretical models for online collaborative learning (Al-Rahmi et al., 2016; Masrom, 2007), frameworks in Web 2.0 (Rohani, 2012), factors affecting the intention to use e-learning (Philippsen, 2015; Kadhim, 2015; Al-Rahmi et al., 2015; Tarhini, 2017), students' perception in online collaborative learning (Subramaniam, 2015), empirical online collaborative learning (Zakaria et al., 2012), and the intention to adopt mobile learning (Sanjebad, 2014).

This shows that most past research were not focused on students' intention for online collaborative learning, especially in Wikis. A research (Yunianta & Yusof, 2012) claimed that the success of online collaborative learning cannot be measured via the number of recorded successes, and a more holistic measurement is needed for this matter. Therefore, it is important to determine the factors that influence the intention to use Wikis in online learning, especially in UTM. It is not easy to determine these factors due to the lack of standard model in such study (Shu & Chuang, 2011a). Thus, to ensure the success of online collaborative learning, it is important to really understand students' intention and their acceptance of this technology. According to the "attention-to-affect" model (Critcher & Ferguson, 2011), learning is an expressive and perceptive knowledge (Frijda, 1986). During media learning, intellectual demands are different from the content presence and it can affect the potential outcomes or the action itself (Mayer, 2005). This is supported by Yusoff and Salim (2012), who stressed that if learning tasks require high

cognitive process and participants have limited expertise in the learning domain, the interaction between content and interface encounters many difficulties, particularly conceptualization from content (Hong et al., 2017).

The focus of this study will be on factors determining students' intention towards online collaborative learning, understanding of the main factors that are involved in online collaborative learning intention and also to understand students' perspective and ability in utilizing online collaborative learning methods.

1.3 Problem Statement

There are many studies that have been done on online collaborative learning such as collaborative group project recommender for an online collaborative learning system (Alamri & Cristea, 2016), environments based on social network analysis (Stantchev et al., 2015), online collaborative learning framework (Mhouti et al., 2016; Alzahrani et al., 2016), technologies and tools of online collaborative learning (Esterhuyse et al., 2016; Khechine et al., 2014; Dascalu et al., 2015; Rosbottom et al., 2010; Guo et al., 2015; Sonego et al., 2014), attitudes and interaction that occur in online collaborative learning platform (Lin et al., 2013), student engagement satisfaction (Haineyet al., 2016; Lu & Lee, 2011), online collaborative learning experience (Popovici & Mironov, 2015; Teo & Zhou, 2014; DeWitt et al., 2014), comparison of online collaborative learning impact (Dascalu et al., 2015) and online collaborative learning performance (Khalil & Ebner, 2013; Shu & Chuang, 2011; Gielen & Wever, 2015; Fidalgo et al., 2015).

Even though online collaborative learning is utilized all over the globe, there are still limitations in evaluating the factors influencing intention to use tools and technologies of online collaborative learning, especially in Malaysia (Osman & Chung, 2011; Yiong et al., 2008). Most previous research studied the factor of intention to use online collaborative learning in other countries such as Africa (Cilliers, 2016), Taiwan (Yueh et al., 2015), German (Kummer, 2013), Turkey

(Cigdem & Topcu, 2015) and China (C. Zhang et al., 2010). Very few studies have been conducted in Malaysia, especially in the academic setting on students' intention to use online collaborative learning technologies during the learning or teaching process. Thus, little is known about users' (students and academics) intentions to use these technologies (V. Balakrishnan, 2017; See et al., 2013; Aifan, 2015).

In general, there are many tools that have been used for online collaborative learning such as Wikis, Facebook, Blog, Twitter, Google Docs and Blackboard. However, the number of research made on the use of Wikis for online collaborative learning is very minimal, especially in Malaysia. Previous researchers used other tools for online collaborative learning such as Facebook (Sulaiman et al., 2016; Raman, et al., 2014), Social Network (W. M. Al-Rahmi et al., 2015), Google Docs (Balakrishnan, 2014), Web 2.0 (Rohani, 2012) and Social Software (Shittu et al., 2011).

A research (Mirabolghasemi & Huspi, 2012) claimed that the optimistic influence of online collaborative learning to improve students' learning experience which depends on education, intellectual, and social presence, as stated by the Community of Inquiry (CoI) model. Edmodo was used to support the deficiencies of previous learning tools. However, this method requires more research especially on the integration and implementation of this new technology in the educational context (Mirabolghasemi & Huspi, 2012).

Another research (Yunianta & Yusof, 2012) listed activities rank from UTM e-learning application. On the top of this list are Wiki, Lamstwo and Discussion Forum with a score value of 5. Much kind of activities undertaken by students and lecturer in E-learning, but not all of the activities can be a meaningful learning. Student activities cannot be solely judged just by number of hits, but they must be viewed deeper to ensure their success, especially from the e-learning perspective. Because Wikis obtained the highest rank, this method should be given more priority in future studies.

E-learning in UTM is described as the information and communications technology application used to advance the influences of the teaching and learning procedure (UTM, 2005). In UTM, students were offered with e-learning tools and websites to assist them in both education and communication aspects (e.g. capability to upload notes, make announcements, conduct online tests, link forum discussions, write blogs, search Wikis and use messaging system) simultaneously. Unfortunately, lecturers and students in some faculties do not fully use the e-learning tools provided (Oye and Iahad et al., 2012). Therefore, one of the tools in UTM e-learning, Wiki was selected for the current study.

Based on this issue, the researcher needs to investigate whether the Wikis tools provided in UTM e-learning platform are widely used or not. For the early stage, the researcher studied the factors influencing students' intention to use technology focusing on Wikis.

Although there are several studies made on the online collaborative learning phenomenon (Ellis, 2016), Wikis was selected for this study because majority of previous studies were not focusing on the use of Wikis. It is important to discover factors affecting students' intention to use latest online collaborative learning technology, especially Wikis. In this manner, Unified Theory of Acceptance and Use of Technology (UTAUT) is utilized to dissect the variables influencing students goal to take an interest in online collaborative learning using Wikis tool.

1.4 Research Questions

The main research question for this study is "How to evaluate factors that influence students' intention to use Wikis in online collaborative learning?" Several other research questions arise, including:

1. What are the factors influencing the students intention to use Wikis for online collaborative learning?
2. How to develop an adapted model for intention to use Wikis in online collaborative learning?
3. How to evaluate an adapted model for intention to use Wikis for online collaborative learning?

1.5 Research Objectives

From the research question formulated, the research objectives of this study are listed as follows:

1. To identify the factors influencing students' intention in using Wikis for online collaborative learning.
2. To develop an adapted model for students' intention to use Wikis for online collaborative learning.
3. To evaluate a model of Wikis in online collaborative learning.

1.6 Scope of the Study

The scopes for this research is as below:

1. The research focuses on students' intention in online collaborative learning.
2. The research focuses on higher education students from Universiti Teknologi Malaysia (UTM), Skudai in specific first year students in session 2017/2018 from Faculty of Computing.

3. The research focuses on the use of Wikis tools for online collaborative learning.

1.7 Significance of the Study

The outcome of this study will help to enhance the design of the adapted model for the use of Wikis in online collaborative learning and the focus of this study is on Management Information System courses in UTM. Hopefully, result of the study will provide and strengthen the benefit of online collaborative learning (OCL) usage and help to provide better understanding on factors affecting students' intention to use Wikis for OCL. This will ensure that students will reap the biggest benefits from OCL activities in terms of cooperating with others and having appropriate social skills. This research is expected to be beneficial especially for lecturers and also students to enhance the design of adapted model for Wikis in online collaborative learning. This will also help in ensuring the success of this platform in helping students to ease their learning process.

1.8 Summary

This study is executed in order to investigate the factors influencing students' intention to use Wikis for online collaborative learning. This study will elaborate further on the important factor of intention to use. This chapter has discussed the background and research problems from the OCL context as well as the purpose of the study. One of the objectives of this study is to design an intention model to be used for Wikis in OCL. At the end of this study, questionnaires will be distributed to evaluate the model and identify whether the model can be used for OCL or not.

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